



VOL. 45, No. 1

JANUARY 1977

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COVER PHOTO

Pictured is Al Chander VK3LC. Alf is well known for his work as the WIA Federal Intruder Watch Co-ordinator since 1972. He is also the IARU Region 3 Monitoring Service Co-ordinator since 1975. Alf was first licensed in 1925 as OA3WH then later as VK3WH. In 1956 he became VK3LC. His long and varied interest in Amateur Radio includes: Sec. Moorabbin and District Radio Club, 1960-61; AR Committee and Circulation Manager, 1963-70; Mag Pubs Manager, 1970-72.

Photograph by Reg Gauge.



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Dimensions: Mounting Catches: 2-1/16". Mounting Hole: 5/32" x 1/8". Overall — Base: 2 1/2" x 1 1/2" — Height: 1 1/2". Weight: 7 oz.

Colour Code: 240 V Black, Red. 12.6 V C.T. Blue, White, Blue. 150 mA.

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AR22L Antenna Rotator. Diecast construction to take lightweight VHF and HF beams. Complete with attractive control box which requires only 4 wire connection, 240V AC.

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COE HAM II Rotator for the heavier duty beam. Suitable all HF frequencies except 40m. Requires 6 wire connection, 240V AC.

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6U9	100	\$2.00
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6V9	100	\$3.20
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12AU7A	100	\$1.20

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The Editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying any reason.

Advertising:

Advertising material should be sent direct to P.O. Box 150, Toorak, Vic., 3142, by the 25th of the second month preceding publication. Phone: (03) 24 8552.

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QSP THE NOVICE THEORY EXAM

It is now some time since the announcement of the introduction of the Novice grade of licence.

After many delays we have now reached the stage where two examinations have been held. It is therefore rather disappointing to note from many reports now received that the standard of these examinations appears to have been set at a level not much below that of the AOCF theory exam.

If the concept of the Novice grade is to succeed, and we want it to succeed, the examination standard must be set at such a level to be achievable by those for whom we believed the grade was intended and not just for near-miss AOCF candidates.

The Executive is pursuing this matter.

D. A. WARDLAW, VK3ADW
Federal President.

QSP

DENTAL PROBES

Dentists use numerous "dental probes" for probing around patients' mouths. If an end breaks off they are usually discarded. Being made of strong stainless steel they are particularly useful for fitting components from PCB's or around tube sockets when the solder is molten.

VK3ASC

HEIGHT RESTRICTIONS ON TOWERS—USA

The comment printed on page 4 of AR Aug '76 as extracted from Worldradio News of April has brought out a comment from ARRL that there is in effect no restriction, under FCC Rules and Regulations, on the height of amateur antennas, except for those which would exceed 200 feet above average terrain, or those which are close to airports. In the latter case it would be necessary to file special papers.

DIVISIONAL BROADCASTS

Please amend your list on page 3 of Nov AR in respect of VK1 Division to read—
Time, 10.00 h UTC.

VK2 VHF FIELD DAY

A reminder—The VK2 VHF Group's mid-summer field day will be held from 12.00h ESST Sat 28th January to 14.00h ESST on Mon 31st Jan. Write to WIC, 14 Archison Street, Crows Nest, NSW 2065, for details and enclose s.a.s.s.

1977 FEDERAL CONVENTION

Now is the time to prepare and submit to your Divisional Council agenda items for the 1977 Federal Convention to be held in Melbourne from 23rd to 29th April.

EDUCATION COMMITTEE

The Committee would welcome comments, criticisms (documented) and constructive advice regarding the Novice examination papers set for the November examinations in Theory, Regulations and Morse.

A syllabus for the Novice Theory examination has been prepared and will be published as early as possible after submission to the RFMD.

MALAYSIA REPEATER

The Sept issue of the MARTS newsletter has the news that their Frequency Assignment Committee has approved the use of frequencies 147.9 MHz output and 147.3 MHz input for the proposed repeater at Ulu Kaili, max power 50W, emission 1B5F. The same newsletter also carried information that Malaysian amateurs may now use RTTY.

PREFIXES

Radio Communication Nov '76 reports that the ITU has allocated the call sign series 5FA to 5FZ to the Republic of the Seychelles as from its date of independence.

1977 SUBSCRIPTION RATES

The following are the known subscription rates approved by Divisions for 1977. Items marked * were still to be confirmed when this was written.

Members are reminded to read their subscription notices and to send the amounts direct to the Executive office, PO Box 150, Toorak Vic 3142, as soon as possible to avoid the automatic stoppage of AR owing to becoming unfinancial and the con-

sequences which will arise in the listing for the 1977 Call Book. Please do not wait until a Final Notice has to be mailed to you. Sending out Final Notices has become a considerable extra expense to the Institute in both time and money. In a membership society this could be construed as unthoughtful and unfair to the many, many members who do pay in good time.

1977 RATES

	£	
VK1	21.00	All grades
VK2	20.00	FC
	18.00	AT
	15.00	Students (on proof)
	10.00	Pensioners (proven)
	10.00	Family (no AR)
VK3	23.00	FC
	20.00	AT
	14.00	Students (on proof)
	13.00	Pensioners
	15.00	F or C family (no AR)
	12.00	A or T family (no AR)
VK4	20.00	F
	20.00	A
	18.50	T
	18.50	Pensioners
	7.50	Students (on proof)
VK5	20.50	F
	19.00	ACT
	9.00	Pensioners and Students
	2.00*	Junior Students (no AR)
VK6	20.00	FC
	19.00	AT
	12.00	Pensioners and Students
VK7	17.00	FACT
	10.00	Pensioners and Students

New members, joining fees VK2—\$2.00, VK7—\$1.00.

Federal dues included in the above rates are: EXEC \$7.50, IARU \$0.30, AR \$7.20.

Explanation of Symbols:

F = Full member (city)
A = Associate member (city)
C = Full member (country)
T = Associate member (country)
G = Pensioner
S = Student
X = Sundries, no AR.

END OF ANOTHER ERA

Due to other commitments, Bill Roper VK3ARZ has reluctantly found it necessary to resign from the position of Editor of Amateur Radio magazine as from 1.12.1976.

Bill has been associated with AR for many years, more particularly as Editor since February, 1972.

His guidance and knowledge will be greatly missed by the Publications Committee and Editorial Staff.

In grateful appreciation of his tireless efforts, the Executive and everyone associated with the production of AR wish Bill all the best for the future.

WIANEWS

A great number of different matters were discussed at the Executive Meeting in November.

Here are some of the items so as to give you a glimpse of what went on —

1977 Call Book progress.

Input of non-members to EDP for the Call Book.

Task priorities — EDP and subscriptions processing.

Review of recruiting position.

Need for revision of membership proposal forms vis-a-vis

Div. Constitutions.

Car stickers — Slogans

Badges

WICEN

WICEN armbands.

Services personnel, amateur restrictions.

Reminders to RFMD.

Financial review.

Establishment of staff superannuation fund.

Club subscription rates.

Students' subscription rates.

1977 subscription rates.

Approval of accounts.

These items are merely those listed under matters arising from previous minutes and financial matters. This is not at all an unusual array of items.

NOVICE EXAMINATION

Complaints had arrived about the unnecessarily high level of the November Novice Theory examination. Since no copy of the paper was available for inspection it was not possible, only a few days after the event, to arrive at any conclusions.

One correspondent did however write to say that on the information available to him many of the questions were those which were supplied by the Institute to RFMD back in September. As reported in WIANEWS in Nov. AR page 4 the multi-choice questions submitted by the Institute related to the AOCF Theory paper. This was at the request of the RFMD.

Sample Novice theory questions were not submitted because there had been no request for these.

Preparation of a syllabus for the Novice theory examination is well advanced.

POSTAL MOTIONS

The Executive approved the issue of the following motions for voting by the Federal Council:—

"76.20.02. That this Institute, at this time, does not support the concept of an amateur service licence or permit of a level below that of the Novice grade" and
"76.20.03. That the Institute adopts the below-listed frequencies as WICEN net frequencies as may be required from time to time and requests all amateurs to keep these frequencies clear for all properly identified WICEN communications purposes:—

Primary — 3600, 7050 and 14100 kHz.

Secondary — for CW 3575, 7025, 14075 kHz
phone 3625, 7075, 14124 kHz.

WICEN

The Federal WICEN Co-ordinator suggested that a Co-ordinators' meeting now appeared desirable. Executive made a number of recommendations on this matter to the Divisions.

The Federal President is making arrangements to visit the Sydney/Gosford areas on an official visit over the week-end of 19th/20th February next. He will take with him the videotape of the G6CJ aerial circus. Many members would be interested in viewing this.

ALL JAPAN HAMVENTION

JARL 50th ANNIVERSARY

The Japan Amateur Radio League celebrated its 50th anniversary from 23rd to 26th September, 1976.

Michael Owen VK3K1, the immediate Past President of the W.J.A., and a director of the IARU Region 3 Association, represented the Association and the W.J.A.

Here he is shown presenting an opal rock, shaped in the map of Australia and mounted on a plaque, to the President of JARL, Shozo Hara, JA1AN.

The presentation took place on the 23rd September at Chinzan-so, Tokyo, and was followed by a dinner attended by their Imperial Highnesses, Prince Yoshihito Mikasa and Princess Hitachi.

ADDRESS BY MICHAEL OWEN, VK3K1 AT THE COMMEMORATIVE DINNER PARTY AT CHINZAN-SO, TOKYO, JAPAN ON FRIDAY, 24th SEPTEMBER, 1976

"In celebrating its 50th Anniversary the Japan Amateur Radio League has, quite naturally, paid special attention to the past.

But in celebrating the past 50 years may I suggest that we should also look to the next 50 years.

In 1979 in Geneva the representatives of all of the countries of the world will meet and will review the bands allocated to each Service, including the Amateur Service.

There are two very important things that we should, I suggest, remember.

The first is that each country has only one vote. Japan has one vote. So has Australia. But so also has Tonga and Nauru.

The second thing that we should remember is that there are over 300,000 Amateurs in your country. The next largest amateur population in our Region is in Australia where there are only 6,000 licensed Amateurs.

Perhaps we should also remember that our Region, which has 37 votes at the conference in 1979, extends from Iran to Tonga — half the globe.

Our future is not secure. The Amateurs of the world are not the only people seeking to preserve and indeed expand their bands. We must justify our position. We face particular difficulties in our Region — we must remember that there are some countries where there are few Amateurs and other countries where, perhaps for security reasons, Amateur Radio is not permitted. Indeed, in some countries it is treated with the greatest suspicion.

I meet with you on my return from Geneva. There an International

Working Group called together by the President of the International Amateur Radio Union, VE3CJ, has been attempting to formulate an IARU paper that we hope will help to guide the smaller Amateur Societies that we must rely on to present the case for Amateur Radio to their countries.

What do we say is the reason why the Amateur Service has valid and justified requirements for bands?

We suggest that we, the Amateurs of our part of the world, can put our case this way —

The Amateur Service is global; the needs of Amateurs cannot be judged by any country looking only at the narrow confines of that country. The unique contribution of the Amateur Service to international goodwill, training and education is at the heart of its contribution to both the national and international interest.

Your League has recognised the challenge of the conference in 1979. It has generously supported the Region 3 Association. Your President, Shozo Hara, JA1AN, was present at the World Conference in Miami, Florida. Your Society publishes, on behalf of the Region 3 Association, the Bulletin of our Association. We all remember with pleasure the second conference of the Association held in Tokyo.

By this support there is a strong regional organization of national societies.

The IARU and the regional organizations cannot ordinarily approach the government officials of any country directly for to do so could amount to an outside interference with the affairs of that country and could be counter-productive.

The Amateurs of the world must speak with one voice. Through the International Amateur Radio Union and through the three regional societies of the members of the International Amateur Radio Union, I believe we can achieve that common voice.

In our Region, Region 3, we have unique and special problems. With the support of JARL and the other Societies in our Region we can, I believe, effectively present our case.

On behalf of the Directors of the IARU Region 3 Association and the Secretary, David Rankin, and I am sure on behalf of all of the member societies, may I express our most sincere congratulations on your 50th Anniversary and with your support look forward to the next 50 years of our great international understanding."

**TRANSCRIPT OF ADDRESS BY
MICHAEL OWEN ON SUNDAY, 26th
SEPTEMBER, 1976, AT THE ALL
JAPAN HAMVENTION AT GREEN
PARK, ASAGIRI HEIGHTS, JAPAN**

"Your Imperial Highness,

Mr. Hara,

President of the All Japan Hamvention and the Japanese Amateur Radio League,

Ladies and Gentlemen,

The presence of Your Imperial Highness is a very great honour for amateur Radio and highlights the importance of this occasion.

Overseas visitors from the United States of America, the United Kingdom, New Zealand, Thailand, Korea, France, Germany, Sri Lanka and Australia have been honoured to share in the celebrations of the 50th Anniversary of JARL.

I cannot find words to express our gratitude for your kindness to us. I am sure that the last few days will be an experience that none of us will ever forget.

We have thought of the past, talked of the future and enjoyed ourselves. What could be better or more appropriate?

To all of you who have been so good to us and to you, Mr. Hara, on behalf of the visitors from overseas, I thank you, and to all of the amateurs of Japan, I assure you we look forward to the next exciting 50 years of amateur radio in your country."



PHOTO No. 1

PHOTO No. 1

Mock up of the shield presented to JARL in Tokyo by Michael Owen VK3KI on behalf of the WIA.

PHOTO No. 2

VK3KI presenting the shield to JARL President Shozo Hara JA1AN at Chinzon-so, Tokyo on 23rd September, 1976.

PHOTO No. 3

H.I.H. Prince Yoshihito Mikasa being welcomed by VK3KI on arriving at the Japan Hamvention at Green Park, Asagiri Heights.



PHOTO No. 2



PHOTO No. 3

DICK SMITH FOR ALL AMATEUR RADIO EQUIPMENT..



VHF EQUIPMENT

HF EQUIPMENT

Cat D-2520	Kenwood TS520D transceiver, 80 - 10m, SSB/CW, 240V & 12V operation.	\$699.00
Cat D-5201	Kenwood VFO-520 remote VFO for TS520 transceiver.	\$120.00
Cat D-5202	Kenwood SP-520 remote speaker for TS520 transceiver. (Also for TS820 - see below)	\$42.00
Cat D-2110	Kenwood TS820 transceiver, 160 - 10m, SSB/CW/FSK.	\$500.00
Cat D-2111	Kenwood VFO-820 remote VFO for TS820 transceiver.	\$104.00
Cat D-2112	Kenwood DIG1 digital display option for the TS820 transceiver.	\$185.00
Cat D-2530	Atlas 210 transceiver, 80 - 10m, 200W input, SSB & CW.	\$399.00
Cat D-4306	Hy-gain TH3MK3 antenna, 3 el. beam, 20, 15 & 10 m. 8 dBi gain, 1kW rating.	\$195.00
Cat D-4301	Hy-gain 18AVT antenna, 24ft all band vertical (80 - 10) Robust construction.	\$93.98
Cat D-4300	Hy-gain 14AVQ antenna, 40, 20, 15 & 10m, 19 ft vertical.	\$78.00
Cat D-4705	RAK 5B0N antenna, dipole for 80, 40, 20, 15 & 10m. SWR 1.2:1, 2kW rating.	\$47.50
Cat D-4704	RAK 4B0/40DX antenna, loaded dipole for 80 & 40m, 52 ohms. Max legal power.	\$60.00
Cat D-4152	Hustler 4B antenna, 40 - 10m vertical. Max SWR 1.6:1, 21.5 ft high.	\$110.00
Cat D-4152	Hustler MO-1 mobile mast, suits all RM series resonators.	\$28.95
Cat D-4154	Hustler MO-2 mobile mast, as above but bumper mounting.	\$28.00
Cat D-4156	Hustler RM80 resonator for 80 metres, suits MO-1 or MO-2 (see above)	\$29.50
Cat D-4158	Hustler RM40 resonator for 40m	\$28.50
Cat D-4160	Hustler RM20 resonator for 20m	\$23.50
Cat D-4162	Hustler RM15 resonator for 15m	\$19.00
Cat D-4164	Hustler RM11 resonator for 11m	\$19.00
Cat D-4166	Hustler RM10 resonator for 10m	\$19.00
Cat D-4170	Hustler SM2 antenna mount (mobile) inc. 180° rot, stainless steel ball.	\$25.50
Cat D-4180	Hustler MM1 cowl mount, includes 100P ball and SO-239 skt. Accepts PL259 plug.	\$10.50
Cat D-7010	Dummy load, 50 ohms, rated 1250W cont. (would be far higher!)	\$23.75
Cat D-7080	Shimura 1005 TVI filter, low pass 30MHz, 52 ohms, loss 0.7dB, max. attn. 50dB.	\$23.75
Cat D-7180	MC-701 microphone compressor, 25dB max, fully variable, internal batteries.	\$47.50
Cat D-6500	HC-500 antenna coupler. Tunes any antenna for 1:1 SWR, 3.5 - 30MHz. 52 ohms input.	\$166.50
Cat D-7200	6K06 transmitting valve	\$8.55
Cat D-7201	6SJ6 transmitting valve	\$8.25
Cat D-7202	6146 transmitting valve	\$9.00
Cat D-7203	6LQ6 transmitting valve	\$12.00

NOVICE EQUIPMENT

Cat D-1700	Midland 13-882 transceiver, SSB/AM, 11m, 23 channels. RF gain controls, etc.	\$279.50
Cat D-1438	Midland 13-882C transceiver, AM, 11m, 23 channels, delta tune, ant. warning light.	\$159.50
Cat D-1430	Midland 13-820 transceiver, 11m, AM for budget minded. 23 channels, SW input.	\$125.00
Cat D-4142	Mobile 1 Helical antenna. 11 metres, covered in durable plastic. Bt/tee base.	\$20.00
Cat K-3134	Novice Transceiver Kit. Build yourself. 27MHz to 3.5MHz voice channels. Max. output.	\$99.50

Cat D-3100	Kenwood TS700A transceiver, 2m, SSB, FM, CW, & AM. AC/DC, 22 channels. Special.	\$750.00
Cat D-3007	Multi 7 2m transceiver, 23 channel capacity (one channel listed) FM.	\$189.00
Cat D-3010	Multi 2000A transceiver, SSB/CW/FM, 2m, 144 - 148MHz in 10kHz steps. AC/DC.	\$950.00
Cat D-3500	Europe B transistor, 28-30MHz to 144-146 MHz. Capable of any mode trans. uses.	\$239.00
Cat D-3502	Kenwood TV-502 transceiver, suits TS520 transceiver, output 144 - 146MHz.	\$239.00
Cat D-3040	Icom IC202 transceiver, 2M, SSB & CW. Covers 144 - 145MHz, comp. portable.	\$219.50
Cat D-4826	Green GA8020 antenna, 5/8 144MHz/1/4 50MHz. Steel whip, 1.3m long.	\$22.50
Cat D-4200	Hustler G5 144A collinear base antenna, shunt feed, SWR 1.2:1. Stands 100mph wind.	\$88.50
Cat D-4600	3Y2D antenna, 3 element beam for 144 MHz, gain of 5dB, knocks down for portable use.	\$16.50
Cat D-4610	RAK 425 antenna, 1/4 wave 144MHz, s/steel whip, standard PL259 plug base.	\$9.80
Cat D-4611	RAK 825 antenna, 5/8 wave 144MHz, s/steel, 1.25m whip, PL259 base.	\$11.80
Cat D-4850	Antenna element bracket, takes 3/8in rod for making beam antennas. Insulated top.	\$0.55
Cat D-2561	NAG50XL linear amplifier for 6m band, 10W driver for 100W out, built-in supply.	\$379.00
Cat D-2560	NAG14XL linear amp for 2m band, same specs as above unit.	\$279.00
Cat D-2607	Delta SRB receiver, 2m, FM, 11 channel plus VFO 146 - 152MHz, 12V DC.	\$118.00
Cat D-3808	Ham Prods ER80 RF amplifier, 6m, 20-30dB gain for rec. 9 - 12V DC @ 15mA.	\$25.90
Cat D-3802	Ham Prods ER82 RF amplifier, 2m, same specs as above.	\$28.90
Cat D-3832	Ham Prods EXC2 converter, 2m, for 52-54 MHz, IF output on 28-30MHz.	\$35.50
Cat D-3836	Ham Prods EXC6 converter, 6m, for 144-148MHz, IF output 28-30MHz.	\$35.50

SWL EQUIPMENT

Cat D-2850	Yaesu Muse FR-7 receiver, 550kHz-30MHz, Wadley Loop, 240/12V, 0.25uV sensitivity.	\$325.00
Cat D-2866	Kenwood QR-666 receiver, 170kHz-30MHz. All modes (FM optional), band spread, ANL.	\$230.00
Cat D-2801	Drake SSR-1 receiver, 550kHz-30MHz, Wadley Loop, 5AHz dial accuracy, 3 way power.	\$343.00
Cat D-4701	RAK Isener 1 "V" antenna, 3 - 30MHz, with trap. Comp. assembled. Ideal for DX work.	\$22.50
Cat D-4703	RAK Lazerer 2. Long wire dipole, supplied with balun & all accessories, 3 - 30MHz. Ultimate!	\$31.00

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Cat D-7104	Hi-mount morse key. Double ball pivot rollers and adj spring. Contacts for break-in keying.	\$23.75
Cat Q-1340	Okker Bloc SWR200 SWR & power meter, 3-30MHz, Pwr 0-2kW; SWR 1:1 - infinity.	\$67.50
Cat Q-1360	F55 SWR/power meter, 3 - 30MHz, dual imp. Pwr 0-100W; SWR 1:1 - 1:3.	\$34.50
Cat D-5310	RAK BL50A balun, 52 ohms unbal/52 ohms bal. T shape, use as centre support for dipoles.	\$30.75
Cat D-4508	TODT Antenna quick release (mobile). Take the antenna off to avoid vandalism & damage.	\$70.00
Cat D-2675	SS727 Slow Scan TV. Receives both SSTV & ordinary TV. 240V AC operated.	\$598.00
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RADIO TELETYPE

Jostein Gjerde, LA7MC

PART ONE

INTRODUCTION TO RTTY

We present the first of eight excellent articles on the subject of RTTY covering theory and practice. These articles were first published in consecutive issues of "Amateur Radio" the official publication of the Norwegian Radio Relay League. The first article was published in the NRRL AR number 5, 1972. These articles were translated by VK3ZPA's XYL. Her efforts are gratefully acknowledged.

THE TELEPRINTER

The Teleprinter is like an electric typewriter in appearance. It is mostly used in the Telex and similar services. The machines are connected in a current loop and communicate by means of a serial digital code. Generation and reception of letters and symbols depends on the way the loop current is broken. If only two machines are in circuit they are connected in series with a voltage source and a current limiting resistor. As the machines are series connected via two wires, the operating current flows through a loop, hence the term "current loop".

There are two types of information, current (mark) and no current (space). Each letter or symbol is composed of 5 pieces of information which are either marks or spaces and each combination represents a particular letter or symbol. Besides these 5 combinations, a complete symbol also contains a start pulse and a stop pulse.

When a signal is sent from the transmitter, the 7 different pulses are sent in order. The start pulse begins a decoding of the 7 pulses at the receiver end, and thus decoding must naturally be done at the same speed as the transmitter generates the pulses, if the combination shall be correctly read. It is therefore very important that teleprinters connected to the same network, work at the same speed.

The speed used by amateurs is normally described as 45 baud. The descrip-

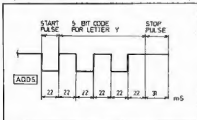


FIG. 1 EXAMPLE OF TELEPRINTER CODE

tion "baud" means current pulses or "bits" of code per second. Fig 1 shows how a teleprinter signal works when this system

is used. As you can see, the start pulse and the 5 identification pulses are each 22 millisecond duration. When you wish to find the speed given in baud, take the reciprocal of the shortest pulse in the signal $1/0.022 = 45.45$ baud.

Fig 2 shows a comparison of the different Teletype systems existing and some of these you can also hear as teletype signals on the short wave bands.

BAUD	WORD MIN	PAUSE LENGTH	STOP PULSE	DESCRIPTION
45.5	55	27ms	27ms	WESTERN UNION STANDARD
50	62.5	30ms	30ms	AMERICAN MARITIME STANDARD
50	62.5	30ms	30ms	U.S. GOVERNMENT STANDARD
50	62.5	30ms	30ms	INTERNATIONAL STANDARD
50	62.5	30ms	30ms	U.S. GOVERNMENT STANDARD
50	62.5	30ms	30ms	U.S. GOVERNMENT STANDARD
75	100	125ms	60ms	

FIG. 2

TRANSMISSION OF TELEPRINTER SIGNALS BY RADIO (RTTY)

In transmission of teleprinter signals by radio, frequency-shift-modulation or F1 is used. We make the transmission frequency jump to and fro to correspond with 'Mark' and 'Space'. The size of this frequency jump is what is called the shift. The shift most often used previously was 850 Hz, but in recent times there has been increasing use of a small shift i.e. 170 Hz. This has many advantages e.g. one uses a smaller portion of your allotted frequency band and somebody receiving can use a small bandwidth on the receiver and thereby get a better signal/noise ratio.

Where commercial stations are concerned, there are many different shifts (including 850 Hz) but the one most commercially used is 425 Hz.

When you wish to key the transmission frequency it can be done in two different ways:—

1. You can act upon the oscillator in the transmitter with the teletype signal such that the transmitted signal jumps in time with 'Mark' and 'Space'. This is called high frequency shift keying (HFSK). Vari-cap diodes are a popular means of achieving HFSK.

2. If you have a single-sideband-transmitter modulated with a single 2125 Hz tone, this will result in the transmitter giving out a single high frequency wave which lies, for example, 2125 Hz below the suppressed carrier wave if you use the lower sideband, or 2125 Hz above the suppressed carrier wave if you use the upper sideband. If you now vary the modulation tone frequency, this will make it appear that the transmitted "carrier wave" changes its frequency. This is called audio frequency shift keying or AFSK.

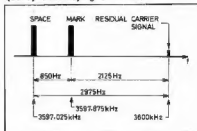


FIG. 3 MODULATION FREQUENCIES

Fig 3 shows how the 'Mark' and 'Space' would be if you modulated with tones of 2125 Hz and 2975 Hz on a carrier wave (suppressed) of 3.6 MHz, using the lower sideband. We see that the 'Mark' signal lies at a higher frequency than the 'Space' signal.

It is recommended that you use the two tones given in the example. There are, however, difficulties with such high modulation frequencies with most single-sideband transmitters.

The usual SSB filters will not let through a tone of 2975 Hz during transmission, and if you have a similar filter on the receiver (such as you have in a transceiver) you will not receive the tone.

You can then procure an extra carrier crystal which lies about 1 kHz higher and the problem is solved both for transmission and receiving. (This new crystal is naturally unsuitable for telephony).

Another solution, which is much used, is to use lower modulation and receiving tones, e.g. 1050 and 1900 Hz, but the solution is not recommended by experts and you will, in any case, get into difficulties if you later want to change over to use one or other ready-built converters e.g. ST-6.

(to be continued)

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This is an Aerial Coupling Unit (ACU) that has been in use in my shack for many years. The details have been given to quite a few other amateurs and all have met with success.

The circuit is simple (Fig. 1). I have deliberately not marked values on the circuit because they are quite flexible.

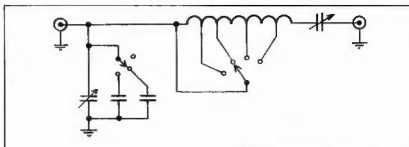
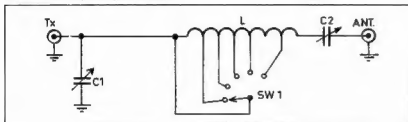


FIG. 2

FIG. 1



When I first built this unit I used components from my old AM rig, so C1 was the plate tuning capacitor, L was a Geloac pi coupler coil complete with switch and C2 was a broadcast 3 gang capacitor.

At this stage let me say that application of this unit can become complicated, so first decide just what you want to do with it. For a home station you may want to match 3 or 4 different antennas on all HF bands and achieve an SWR of 1:1 or thereabouts. For mobile or portable use, a one band one antenna set up may be all you need.

COMPONENTS

The components can be varied quite a lot.

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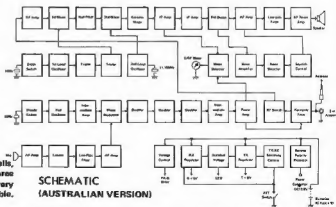
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C1 is usually 150-200 pF full mesh and in some cases fixed C is switched in parallel to give the desired result. (Fig 2).

Coil L can be a duplicate of the Geloso coil; others have used variations such as

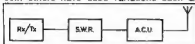


FIG. 3

2" diam. 4" long, 3" diam. 5" long and so on.

C₂ in your ACU is a 3 gang BC with gangs in parallel. A single gang, for most applications, would have been sufficient.

L and C₂ are in series with your antenna line, so varying one will cause a variation in setting of the other. Switch S₁ should be a ceramic switch with a progressively shorting contact. These are pretty hard to get these days so an ordinary 5 or 6 position Oak switch will do the job and with full power input should last two or three years. When it goes you will hear and smell it quickly!

OPERATION

Let's now look at Fig 3 and start to use this ACU to our benefit.

First put C1 in full mesh and L on Tap 1. Tune in a signal on the band and then sweep C2 through its range and look for an increase in signal strength. If there is no improvement switch to the next L tap and sweep C2 from full to minimum mesh once again. Repeat this until you have reasonable signal received.

Now tune up your transmitter into a dummy load of the same impedance as you hope your antenna will show. For this operation take the ACU out of circuit (Fig 4). Naturally if the dummy load is any good the SWR will be 1:1. Connect your antenna in place of the dummy load and note the SWR without touching the transmitter.

Now back to the set up in Fig 3. Check the SWR with the ACU set up for receive, then transmit and tune C2 for a dip in reflected power. This dip should be quite sharp. Tune C1 to improve this dip in reflected power. The SWR should be very close to that obtained with your dummy load. Remember on HF you can accept up to 2:1 without damage to your final tubes or serious loss of power, unless using one of the solid state untuned final circuits with infinite SWR protection. Then you will do no damage but will lose a lot of power.

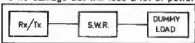


FIG. 4

If no sharp dip can be obtained with C2 try another coil tap. If no combination of C2, L, and C1 will give you the above results, your antenna is just not capable of resonating within the band or your ACU components are way, way off. This last would surprise me as I have seen such a variety of coils and capacitors used successfully.

CONSTRUCTION HINTS

Building the unit is easy. Use solid wire 20 gauge or heavier. Don't forget C2 is in

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MPF104	1.10
MPF105	.35
MPF106	6.0
MPF131/121	1.30
2N706A	.35
2N919	1.60
2N2222A	.95
2N2905	.95
2N3638A	.50
2N3642	.45
2N3819	1.25
2N5245	.65
2N5590	7.75
2N5591	.95
2N6004A	17.50
40607A	2.85
40673	1.85
40941	1.60
MPF903	7.90

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74874	1.80
745112	2.50
74S196	6.85
7400	.39
7404	.39
7474	.69
7489	3.90
7490	.65
74121	.75
74145	1.85
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series so will need good insulation from surrounding metal work and particularly good insulation for the tuning knob. An insulated coupling to the shaft is the best for the latter.

VARIATIONS

Now a few ideas for the adventurous. Adding parallel C to C1 has already been mentioned; the number and complexity of the switching is up to you.

How many taps on L? If you can get a suitable switch a dozen or more taps can be used; you could even use two switches and treat L as two coils in series. A roller inductance is a good idea if you have one available.

Changes in C2 are a little harder due to insulation problems but fixed C high voltage types can be used in some cases with suitable switches (Fig 5).

MOBILE

For mobile/portable work let's try for a coupler that will change bands by using only one switch with no capacitor tuning at all. The trick here is to use small spaced trimmers combined with high voltage fixed capacitors. I have not yet tried this but feel the best method would be to improve an ACU using the coil you intend to use in the finished unit and calibrated variables for C1 and C2.

Suppose we are using a helical on 80m. Tune up and note settings of C1 and C2 and the tap on L. Now replace C1 and C2 with trimmers and fixed C such that the trimmers give the same capacity as the original settings when set at half mesh. (In some cases you won't need any fixed capacitors.) Retune and you should be able to obtain the same results as before, but now the size of the unit is determined mainly by the coil. A word of warning — you can experience "flash over" in C1 or C2 if using full power and close spaced plates on the trimmers. Lower powered rigs such as the FT75B should work with small trimmers.

For C1 and C2 in the test rig any reasonable variable capacitors will do. Try a 200 pF in C1 and a two gang BC type for C2. Calibrating them is time-consuming using a GDO but quite accurate enough. If you have access to good measuring equipment I suggest you fit the two gang capacitor with a dial and calibrate it accurately. Such a capacitor is a very handy thing to have in the shack if you are inclined to experiment. Fig 6 shows the circuit. The only complication is the switching. The benefit is a one switch band change and your ACU is set for the band in use.

HOME STATION

Further additions may be made to home station units by using co-axial switches. Suppose you have a G5RV for all bands, a dipole on 40m and a tri-band beam for 20, 15 and 10m.

You want to use the coupler with the G5RV and the beam but not with the dipole. The use of two co-ax switches gives you a quick method of selecting the correct combination. Naturally this facility puts cost into the system as co-ax switches are not cheap.

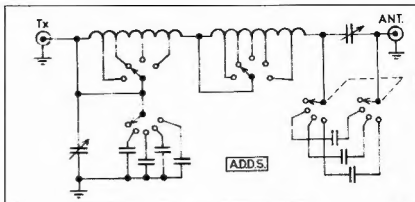


FIG. 5

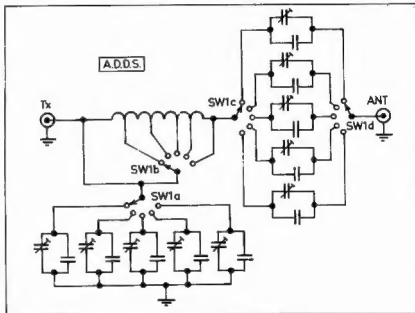


FIG. 6

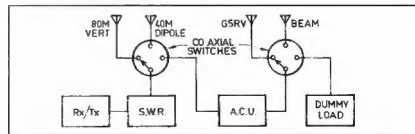


FIG. 7

Fig 7 shows a home station coupler which is very versatile and not too complicated to build or use. On air tests with this ACU have proved conclusively that its use can give a few extra watts to your antenna and thus a few more microvolts at the receiving end where it is needed.

Should any reader wish to discuss any particular details I will be happy to arrange a sked one evening.

A final warning — this ACU will not perform miracles. Your antenna must be capable of resonating in the required band. The ACU puts the final polish on it. ■



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- DRIVER UNITS HI-FI & P.A.
- FUSEHOLDERS
- GUIDE STRIPS
- HARDWARE
- HORNS HI-FI & P.A.
- INHIBITORS
- INTEGRATED CIRCUIT PACKAGING
- INTERFACING HARDWARE
- INSTRUMENT MODULES
- INSTRUMENT POWER SUPPLIES
- JACKS
- LAMP HOLDERS
- KNOBS
- MATRIX BOARD
- MICROPHONES
- MICRO PROCESSOR SYSTEMS
- MIXER P.A.
- PLUGS
- RACKS (EQUIP)
- RACKS ACCESSORIES
- RESISTORS
- SPEAKERS
- STANDS P.A.
- SUBCONTRACT
- TURNTABLES
- TERMINAL PINS
- WIRE ENAMEL
- WIRING FACILITIES

2m REPEATER LOCATIONS & CHANNEL NUMBERS



Area	Call Sign	Ch.	Time Out (Min)	Ident Mode	Power Watts	Mobile Range (km)	Height ASL (m)	Site	Sponsor	Status
AUST. CAPITAL TERRITORY										
Canberra City	VK1RAC	46	4	MCW	10	100	887	Mt. Majura	ACT WIA	Operational
Eden-Montaro	VK1RGI	47	4	MCW	40	325	914	Mt. Ginini	ACT WIA	Operational
NEW SOUTH WALES										
Pt. Macquarie	VK2RAO	42	3	MCW	20	65		Transit Hill	Oxley Reg RC	Operational
Western Plains	VK2RAO	42	3	MCW	50	160	1400	Mt. Canobolas	Orange District RC	Operational
Wagga	VK2RWG	43	4.5	MCW	10	85	550	Mt. Flackney	Wagga District RC	Operational
Wyong and Gosford	VK2RAG	43	3	MCW	30	60	170	Karriiong	Cent. Coast ARC	Operational
Lismore	VK2RIC	44	4	MCW	80	80		Parrots Nest	Summerland RC	Planning
Sydney S. Suburbs	VK2RLE	44	4	MCW	30	80	150	Engadine	St. George ARC	Operational
S. Coast and T/lands	VK2RAW	45	4	MCW	70	120	760	Mt. Murray	Ilwarrara ARS	Operational
Lower Hunter River	VK2RAN	46	4	MCW	30	140	402	Gt. Sugarloaf	Hunter Br WIA	Operational
Sydney Eastern Suburbs	VK2RBV	46	4.5	MCW	30	100	100	Waverly	Waverly ARC	Operational
Sydney Northern Suburbs	VK2RAS	48	3	MCW	40	80	228	Dural	NSW WIA	Operational
VICTORIA										
Melbourne	VK3RML	42	2.5	MCW	50	130	600	Mt. Dandenong	Vic. WIA	Operational
Bellarat	VK3RBA	43	3	MCW	15	20	70	Mt. Bunningyong	Vic. WIA	Operational
Bendigo	VK3RAM	44	2.5	FSK	40	100	740	Mt. Alexander	Midlands Zone WIA	Operational
Latrobe Valley	VK3RLV	44	2.5	MCW	40	120	730	Mt. Tassie	E. Zone WIA	Operational
Mt. Macedon	VK3RMM	45	2.5	MCW	25			Mt. Macedon	Vic. WIA	Testing
Swan Hill	VK3RSH	46	2.5	MCW	40	50	63	Swan Hill	Swan Hill ARC	Operational
East Gippsland	VK3REG	46	4.5	MCW	25	100	900	Mt. Sugarloaf	E. Zone WIA	Operational
Colac	VK3RSW	48	3	MCW	25			Otway Ranges	Vic. WIA	Planning
Gramplanja	VK3RWZ	47	2.5	MCW	25	130	1170	Mt. William	W. Zone WIA	Operational
Mildura	VK3RMA	48	4	MCW	100	55	51	Mildura Airport	N.W. Zone WIA	Operational
Geelong	VK3RGL	48	3	MCW	25	120	340	Mt. Anakee	Vic. WIA	Operational
Wodonga	VK3RNE	48	3	MCW	25			Mt. Big Ben	N.E. Zone WIA	Operational
QUEENSLAND										
Gold Coast	VK4RGC	42	4.5	MCW	50	60	500	Mt. Tamborine	Gold Coast RC	Operational
Townsville	VK4RAT	42	4.5	MCW	10	75	740	Mt. Stuart	Townsville ARC	Operational
Rockhampton	VK4RAR	42	4	MCW	20	80		Mt. Archer	Central WIA	Operational
Toowoomba	VK4RDD	44	4.5	MCW	10	80	636	S.E. Toowoomba	Darling Downs RC	Operational
Bundaberg	VK4RDU	44	4	MCW	20			Mt. Goomamamah	Bundaberg RC	Planning
Ipswich	VK4RAI	46	4.5	MCW	20	60	400	Denmark Hill	Ipswich ARC	Operational
Brisbane	VK4RBN	48	5	MCW	50	80	632	Mt. Glorious	Brisbane WIA	Operational
SOUTH AUSTRALIA										
Port Pirie	VK5RPN	42	5	MCW	10		730	The Bluff	S. Australia WIA	Operational
North Adelaide	VK5RHO	45	2.5	MCW	25	80		Houghton	S. Australia WIA	Operational
Mt. Gambier	VK5RMG	46	5	MCW	25	80	100	SES-3 Studios	S. Eastern RC	Operational
Adelaide	VK5RAD	48	9	MCW	15	80	610	Crofters	S. Australia WIA	Operational
WESTERN AUSTRALIA										
Perth (Hills)	VK6RAP	42	5	FSK	25	160	360	Roleystone	W. Australia WIA	Operational
Perth (City)	VK6RAH	44	5		25	80	90	Wireless Hill	Perth Rep. Group	Operational
Albany	VK6RAA	44	5	MCW	40	100	430	Mt. Barker	South Electrical Gp.	Operational
Bunbury	VK6RBY	48	5					Mt. William	W.A. Rep Group	Planning
Wagin	VK6RAW	48	5	MCW	12	70	395	Mt. Latham	W. Australia WIA	Operational
Kalgoorlie		48	5							Operational
TASMANIA										
Hobart	VK7RHT	42		MCW	70			ABT2 Tower	S. Branch WIA	Operational
Ulverstone	VK7RNW	43	4.5	MCW	30	60	70	Mt. Leona	N.W. Branch WIA	Operational
North-East Tasmania	VK7RAA	48	5	MCW	60	190	1400	Mt. Barrow	N. Branch WIA	Operational
NORTHERN TERRITORY										
Alice Springs		42								Operational

REPEATER CHANNEL NUMBERS AND FREQUENCIES

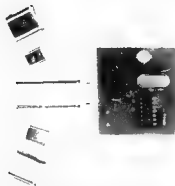
Repeater Ch. No.	INPUT		OUTPUT		Repeater Ch. No.	INPUT		OUTPUT	
	Ch. No.	Freq. MHz	Ch. No.	Freq. MHz		Ch. No.	Freq. MHz	Ch. No.	Freq. MHz
41	41	146.05	53	146.65	45	45	146.25	57	146.85
42	42	146.10	54	146.70	46	46	146.30	58	146.90
43	43	146.15	55	146.75	47	47	146.35	59	146.95
44	44	146.20	56	146.80	48	48	146.40	60	147.0

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CONTESTS

Kevin Phillips, VK3AUQ
Box 67, East Melbourne, 3002

CONTEST CALENDAR

Dec 1/1
Jan 16 ROSS HULL VHF MEMORIAL
CONTEST

8/9 YU 80 metre Contest
15/16 Hunting Lions Party
15/16 DX CRP CW Contest
26/30 CQ WW DX 160 Contest
29/30 French CW Contest
29/30 Classic Radio Exchange
29/31 VHF Mid-Summer Field Day Contest

Feb. 5/6 ARRL DX Phone Contest
12/13 JOHN MOYLE MEMORIAL NATIONAL
FIELD DAY
19/20 ARRL DX CW Contest
18/20 VL-CW Phone Contest
26/27 French Phone Contest

Mar 5/6 ARRL DX Phone Contest
5/8 VL-CW CW Contest
19/20 ARRL DX CW Contest
26/27 CQ WW WPX SSB Contest

YU 80 METRE CONTEST

GMT Jan 6 to 2:00 GMT Jan 9

Exchange RST and QSO number. Score 1 point for contacts between stations in same country, 2 points with other countries on same continent, 5 points on other continents. 5 points, YU stations count for 10 points. Multiplier a one for each DXCC country and each YU prefix worked. Certificates to top scorers in each country with 2nd and 3rd place awards where justified. All VK call areas considered separately for awards. There are also trophies for continental leaders. Logs to reach YU DX Club of SRJ, P.O. Box 48, 11051, Bragade Yugoslavia, by March 31st, 1977

"HUNTING LIONS" QSO PARTY

1200GMT Jan 15 to 1200 GMT Jan 16, 1977

This activity is sponsored by Lions International, and co-ordinated by the Lions Club of Rio de Janeiro, Brazil. The activity is between Lions and non-Lions. Exchange Name, QTH, QSO No. and the time Lions will add their Club name. Score 1 point per contact, 2 points if it is with another country. VKs can claim 2 bonus points for working the Araporos or Marumbi Clubs of Brazil. Prizes used are the top 20 KHz of 40, 20, 15 and 10 metre phone and CW bands. There are awards for both Phone and CW. Send logs within 30 days to Lions Club of Rio de Janeiro (Araporos) Rua Souza Lima n 310 - Apartamento 902 Rio de Janeiro - 20000 ZC 37, Brazil.

CQ WW DX 160 CONTEST

GMT Jan 28 to 1800 GMT Jan 30

Rules are the same as previous years. This is a CW only contest. Send RST and serial number. Cam 2 points per QSO within same country, 5 points with other countries. WAVE/VO count 10 points. Multipliers are 1 for each US state, 1.5 for province and 2 for country. Final score is total QSO points times the sum of the multiplier. Send logs to CQ 160 Contest 14 Vandeventer Ave, Port Washington, L.I., N.Y. 11060, by Feb 28, 1977

FRENCH DX CONTEST

CQ 0000 GMT Jan 29 to 2400 GMT Jan 30, 1977
Phone 0000 GMT Feb 28 to 2400 GMT Feb 27, 1977

Contact exchange includes continental France, DUF countries and the following prefixes: ON, HS, LX, VE2, OD, HN, 38, 9U, 90, 9X, French stations will give RST(1) and 2 figures identifying their department. Others give RST(1) and QSO number. HS and ON may give 2 letter abbreviation for Canton or Province. Each QSO 3 points. Contacts with FRFEP and FRFEP are worth 10 points. Multiplier is one point for each French Department, 15/16 Swiss Canton (22), Belgian Province (10) and each DUF country. Plus LX, VE2, OD, HA, 38, 9U/RX. Final scores is total QSO points times sum of multiplier from all bands. Logs to REF Traffic Manager Lucien Aubry, FBTM Rue Mercœur 53 - 91120 Palaiseau, France.

VHF MID-SUMMER FIELD DAY

1200 EST 29th Jan. to 1400 EST 31st Jan, 1977

This Field Day is conducted by the VHF and TV group of NSW, over the Australia Day long weekend. All bands above 52 MHz may be used. Each station may be worked once per band per clock hour. The minimum contact distance is 1 kilometre. Crossband, HF and repeater may be used to set up contacts, but not for scoring. Oscar 6 and 7 are not classified as repeaters for this

SCORING TABLE

km	6M	Time	2M	Time	70 cm	ATV	50 cm up
1-50	2	3	1	3	4	20	10
51-100	4	6	2	6	10	50	50
101-150	10	15	5	15	30	150	150
151-200	20	30	10	30	60	250	250
201-300	50	75	25	75	150	500	500
301-500	100	150	50	150	300	1000	1000
501-1000	200	300	100	300	600	2000	2000
1001-2000	300	450	150	450	900	3000	3000
2001 up	80	75	125	375	600	3000	3000

Oscar 2 to 10 translator 20 VK/ZL, 50 other countries.
7-2 translator 50 VK/ZL, 100 other countries.
ATV serial numbers must be exchanged on vision and sound.

MAGAZINE

Syd Clark, VK3ASC

BREAK-IN September

The Browning-Drake Receiver, Profile of a Radio Pioneer, Ralph Slade: Vari-Cap VFO.

CQ MAGAZINE June

A Canoe, A PM2B, an ONI QTC QRP 8/10; Review Heathkit HW-2021, 1975 WW CQ DX-Contest, Phone Results, Making IOT Projects Work; Antennas.

HAM RADIO August

High Frequency Receiver Design, Multiband HF Converter, Microwave Amplifier Design, Two Channel VHF FM Receiver, Farnsworth VHF Converter; Upgrading Tube Type FM Receivers.

High Performance VHF FM Transmitter, RTTY Demodulator, Application and use of the Hand Held Calculator, Syllabic VOX System for Drake Equipment, Derivation of Electrical Units, IF and Detector Module, Digital Television Scan Converters; Coaxial Dipole Antennas: Facts and Fallacies, Differential Keying Circuit, TTL IC Tester; VHF Bandpass Filter, Microprocessors.

QST July

A Few Public-Spirited Hammers; His Eminence - The Receiver, Understanding Modern Oscilloscopes, The Herring-Aid Fly, The Maund Minimum, A Wide Range Crystal-Controlled Frequency Standard, Enhance the Performance of Your Accu-Memory, RF Packet Up-date.

September

Meet the Microprocessor: The Mini-Miser's Dream Receiver; VHF FM Receiver Trouble-shooting, The Tower Shield, Hot and Cold Resistor as UHF Noise Sources, RF Growl Up, Oscars Help Dedicate New Air and Space Museum, California to Hawaii on 2 Metres, A First from the Sky, Morse Decoded, Radio Scouting at NORDJAM-75.

RADIO COMMUNICATION September

Practical Polyphase A Fourth Generation CW Keyer Using CMOS IC's, The IP Quad, Tunable Gunn Oscillators.

RADIO 25 May to September

Direction Finding, Some Ideas on Filters, Convert Your AM Rig to DSB, Looking at the LM 373, TV Matchbox Amplifiers and Their Problems to the Amateur, Hamming it Up on the Rio Yacht Race, An Active CW Filter, Build a Two Metre Transverter Historic IARU Region 1 Conference-Gabonese, A Quick and Simple 160 Metre Transverter How to Build a Digital Read-Out for Your Argonaut; A Stable VFO.

A Medium Power Two-Watt Linear Amplifier

SHORT WAVE MAGAZINE August

OQR Linear for Multi-Band Working, Clipper for the Line-2, Two-Metre Transistor Converter; Sideband/CW Adapter for BC Receivers; CQ BFO for SSB.

contest. There are 3 sections: Field stations, Mobile stations, and Home stations. The best scores are 5 class hours and the best overall score in each of the above sections.

Entries must give the call sign and TOTAL points claimed for each station worked, there is no need to submit complete log extracts. Includes a cover sheet and a signed declaration. Entries go to the VHF and TV group 14 Alchin Street, Cross Creek, NSW 2065, before March 14th, 1977.

20 YEARS AGO

Ron Fisher, VK3OM

JANUARY, 1957

To mark the 1958 Olympic games held in Melbourne, VK3WI co-operated with VK7VI in receiving a message of greetings from the Greek Radio Amateurs. The message was transmitted from Mount Olympus in Greece to VK7VI operating portable from Mount Olympus in Tasmania, and was later passed on to VK3WJ and then handed to the Chief Executive Officer, Olympic Games Committee in Melbourne.

Transmitters were mysterious objects to most of us in 1955 (they still are to many old-timers), but Hans Albrecht VK3AMH drew some light on the subject of audio amplifier design in the January, 1957 issue of AR.

Diagnosis of TVI, a reprint from the R30B Bulletin, was one of those articles that did not actually tell you how to cure your TVI but rather how to diagnose the cause. Frank Fowler VK2AP described his "Simple Mobile Whip for 40-50 metres". Basically a Centre loaded whip with a slider on the coil to change bands, Frank claimed to have worked ZL's on both bands with 4 to 8 watts input.

Improving receiver sensitivity was always an interesting pastime. When new tubes became available, they were always tried to see if they outperformed the old. D. G. Hawthorne VK3ZCD described the improvement he got by substituting a 6BY7 for a 6AG5 in his CR 100 receiver.

A paper at AR column twenty years ago was the SWL section. In those days it was compiled by Ian Hunt L3007 now better known as VK5QX. Many of the junior members mentioned from that time are now well known amateurs.

Included in the VHF notes was a description of a television set built by Keith VK3KJH. Just to stir your memory here is a description of the set-up: A Lorain GRC with a 5CP1 was the base with the tune and IF strip from a Rebecca R1045 radar transceiver. The sync separator used a VR505 as did the frame oscillator. It was often amazing the picture quality that could be obtained from such a set-up.

AROUND THE TRADE

DAICOM HAS MOVED

Well known ACT amateur Andrew Davis VK1DA the Managing Director of DAICOM has expanded his interests and has taken over the local business of Custom Scientific.

The new location is now at 29 Colbee Court, Whiting ACT 2606.

Daicom caters for all amateur requirements and specialises in the use of components etc., for the professional market, and the servicing of equipment.

V-KLIF AN EXPANDING WORLD

Eric Jamieson, VK5LP

Forrester, 5233

AMATEUR BAND BEACONS

VK0	VK0MA, Mawson	53.180
	VK0GR, Casey	53.280
VK1	VK1RTA, Canberra	144.475
VK2	VK2WI, Sydney	52.450
	VK2WI, Sydney	144.810
VK3	VK3RTG, Vermont	144.700
VK4	VK4RTT, Townsville	52.600
	VK4RTT, Mt. Mowbray	144.400
VK5	VK5VF, Mt. Lofy	53.800
	VK5VF, Mt. Lofy	144.800
VK6	VK6RTV, Perth	52.350
	VK6RTV, Kalgoorlie	52.350
	VK6RTW, Albany	52.950
	VK6RTW, Albany	144.500
	VK6RTW, Perth	145.000
VK7	VK7RNT, Launceston	52.400
	VK7RTX, Devonport	144.900
	VK7RTW, Launceston	432.475
VK8	VK8VF, Darwin	52.200
3D	3D3AA, Suva, Fiji	52.500
JA	JD1VAA, Japan	50.118
HL	HLWV, South Korea*	50.110
KG	KG0JX, Guam	50.110
KH6	KH6EQ, Hawaii	50.194
ZL1	ZL1VHF, Auckland	145.190
ZL2	ZL2VHF, Puke Muri	28.178
	ZL2VHF, Palmerston North	52.500
	ZL2VHF, Wellington	145.200
	ZL2VHF, Palmerston North	145.200
	ZL2VHF, Palmerston North	433.480
ZL3	ZL3VHF, Christchurch	145.300
ZL4	ZL4VHF, Dunedin	145.400

SIX METRES

Naturally at this time of the year we all talk about six metres. And there is certainly plenty to talk about. The longer type of openings appear to have come a little later this year and may well mean a later finish, and hopefully some excitement. It is 1985, etc., during the period between Christmas and New Year, a period which has been somewhat dry of really good openings for several years.

Al, VK ca areas except VK0 and VK6 have been available consistently since the middle of November with mostly excellent strong signals. ZL stations have been readily available as well, with ZL1, ZL2, ZL3 and ZL4 being worked here. One pleasing contact was with Paul ZL1QI running 6 watts with a great speaking to 38.

Of particular interest to many a six metre operators has been the YJ8KM in V via, new machines. First news of the station came from VK4ZSV who worked him on 11/1/78 with signals 59 - 40, and, and, etc., during the period between Christmas and New Year, a period which has been somewhat dry of really good openings for several years.

Stephen VK4ZSV goes on further to report that Ken YJ8KM will shortly be using a pair of 11 element yags on 2 metres FM with 130 watts output for repeater and Channel 50 contacts.

Further interesting news from VK4ZSV indicates of the JA opening to Brisbane on 24/10 (reported as month A) and also the reception of unusual garbled signals on 144.100 where VK4ZSV reported hearing a 4000 signal above 144.100. VK4ZSV and VK4ZK, both reported hearing French, appeared to phone conversations on 144.360 on several occasions during October (possibly New Caledonia?). As a result of this, six metres is booming in Brisbane, with unheard of calls for years coming on the band.

It is noted also that six metres SSB is very active in Brisbane with at least some 80 stations now on, with 1 to 2 newcomers each week. Dozens of 4CX250B's means for both 6 and 2 metres are under construction, and it is anticipated Brisbane will

soon have more high power 2 metre SSB stations per head than most other places in Australia. . . Well that's really good news and it is to be hoped good use will be made of them. Thanks for the letter Stephen, and look forward to hearing from you again.

AROUND THE BANDS

A new 2 metre SSB station near Nhili is Alan VK3JFJ, and he has been working in VK5 by the usual slow stations keeping a watch on 2 metres. John VK5JJP at Rose Park, a suburb of Adelaide has worked Alan quite successfully and one would hope a few more of the local 2 metre gang will become more active. There must be dozens of stations in Adelaide with 144 MHz SSB capability, most additions needed to the many small 3 watt rigs would be a solid state or similar 30 to 50 watt linear and a good horizontal antenna, e.g. 10 at 144.700, would be a big help. It seems a pity more use is not made of 144 MHz SSB in VK5. We seem now to be the least active State, with a very mistaken impression VK3 cannot be worked from Adelaide. Heavens above, if I can work interstate 2 metre DX from my relatively poor location, surrounded by hills, then there are very many lost opportunities by Adelaide operators.

Ron VK3JMK complains of lack of contact with VK5 so here are a few details of his schedules. Ron operates CW on 144.003 at 0900Z daily, and about the same period or soon after calls and listens in the Adelaide direction on 144.070. Ron has a good location at Geelong, a good antenna and power capability. He suggests also that those operators in Adelaide and elsewhere who operate on 144.100 MHz, the 2 metre calling frequency, with a view to making DX contacts, should allow a three second break between overs, as Ron is consistently hearing VK5 stations from Adelaide, but cannot break in because each time he commences too quickly and with weak signals he cannot be heard. So bear this in mind.

David VK5KK, who keeps an ear on VHF, was rewarded on 15/11 by working YJ8KM in the New Hebrides. Together with Esther, Keith VK5SV, this team is very active in keeping VHF alive in this State. I don't see any other teams with as many well interested operators in Adelaide complete the circuit.

Reg VK1MP advises there are now 16 stations in VK1 with 2 metres SSB, and four on 432 MHz, so here is another area with suitable possibilities for VK3 and VK5. . . Tony VK6BV in Kalgoorlie received a letter from a girl in NZ2 so is looking towards building a linear and a 4CX250B to give him an opportunity of working distant 2 metre SSB stations.

Mike P294J is now VK7MC, having forsaken the jungle and heat of the tropics for the jungle and cold of Tasmania, and has a very strong 6 metre SSB signal into VK5 at the moment. Joe VK7JG, an VK5 operator, rates ZL300K was very strong 6 metres for more than three hours on 21/11, and on this day he also worked YJ8KM, plus VK6ZCU and VK6ZTW for good measure. While still in Tasmania mention should be made that the 432.475 MHz beacon down there runs 15 watts to a linear and is being heard from Launceston to Mt Gambier, and believe it or not, that path is not far off Adelaide, or me for that matter!

Some people move down from the tropics, others go up there. Mark VK5ZZZ and Barry VK5WB (Woolly Bear) are both going to Cairns and by all accounts will be doing what they can to direct signals back this way on both 6 and 2 metres SSB plus working the repeater. The repeater, together with the already increased activity in the north of Queensland, could help to interest others up there.

John VK6BHO reports a strong lightning bolt got into the south coast repeater recently and did considerable damage, but the repeater should be back on the air now. Personally I never trust lightning, so when any storms are imminent I disconnect all equipment and my car. I have a lot of equipment. Living in the hills, we are subjected to rather violent storms when they come. So far I have had no trouble.

A very roundabout message came to me recently from Lindsay, VK4ALA, ex VK4AAL, at Rockhampton stating he had received a message from Geoff VK3AMK who in turn had received a message from Neil VK6ZCU to the effect that Neil had been hearing, but not necessarily working, the following call areas on 6 metres from Darwin during

October VU, V56 KH6 UA ZL, JA JR, HL9, P29 as well as VK. That's not a bad coverage of the northern areas but their signals reach further south.

Mike VK2AM (worked here on 6 metres) mentions considerable 2 metre activity on SSB in Sydney, and with Kerry ex-VK5SJ now residing at Moree in northern NSW hammering away at them on VHF there is a possibility some Sydney airmail may be turned north to work Kerry and Barry VK2ZAY in Bogangra, and may also be heard on with some of those similar airmail emanating from Brisbane. It's only a matter of time boys!

The ZL boys also will be pleased to know their six metre beacon is being heard consistently in VK5, so it does cover some country. Noticed a so-called 'newcomer' to the ZL band on 21/11, that that B I ZL3K was getting a rather rough time from the borders of VK stations all wailing to work him, he seemed to be sitting about 52.050 for hours!

Noticed my old friend GQ VK7LZ on 6 metres recently. GQ writes the notes for 'Q R R' and judging by the formidable list of stations he contacts he must be very busy on HF. However, when the DX comes along on 6 we are always happy to welcome GQ back to our ranks. Still an excellent signal from you GQ.

Daniel VK7ZDA is still looking for wind powered equipment to take him locations so he can be set up in the clouds. Note also from 'Q R R' that Daniel has now resurrected his 432 MHz transmitter, after dropping a hammer upon it is now able to get into Oscar with 1 watt. In Hobart we note VK7AZ and VK7AK have purchased 432 MHz rigs, mainly to work through Oscar.

Further upgrades in VHF activity are reported in the 'Geelong Amateur Radio and TV Club News Letter' with Peter VK3JAWY and Dennis VK3ZKH having 6 and 2 metre transmitters. Charlie VK3ZBG uses his FT200 to drive a 2 metre transmitter with full power to a YL1050. Also active is Mike VK3ASD with a YL1050 for both 6 and 2 metres. While Alan VK5VL has purchased one of those 'handbag radios' an IC202, so has Trevor VK3AZR. With all the going on in Geelong surely there has to be a total upsurge in 2 metre contacts across the continent before long.

The 'West Australian VHF Group Bulletin' mentions an increase in activity in Kalgoorlie with the repeater on channel 8 with a range up to 25 miles. VK3ZKZ, VK3CJ and VK3BV are on 6 metres. Low VK4ZBG is working on a 432 MHz transmitter which is nearly complete.

It is probably relevant to bring to your notice some lines from the 'Eastern Zone News from VK3 Burelin' under the heading of SAFETY. I quote: "Several towers have come down of the r side of good ground under the eastern zone lately. Two wind-up towers have unwound themselves and another collapsed three days after erect on lucky no serious damage was sustained. Perhaps it is time careful consideration was given to all aspects of aerial installation. An area with a gain of 25 dB at 60 feet only a fraction of this gain when bent into a U shape at ground level. Pillars exposed to the weather for long periods may badly deteriorate without regular maintenance and galvanneal wire does not last forever. Pay careful attention to the winch on your wind-up tower. Do not pull on the cable when engaged because it clicks away merrily while the tower is being wound up. Ease off the winch handle slowly to make sure that it is engaged, and preferably use some additional means of locking the winch before letting the handle go. Very good advice and may save you a few more thousands. Always use something to attach your guy wire to, or your mast, these do not wear away like the wires do when tied directly at the anchor point. If using turnbuckles always run a piece of plain wire through the coiled section to prevent it from unwinding which it will certainly do long before it rusts up. To prevent rusting, use a good grade of oil. So is it, or is it, mounting hardware from rusting. Coat all such items with oil galvanneal paint before hoisting in the air. Years afterwards you can undo every nut and bolt as this paint properly applied has a life of 36 years or more. Do the job properly, and that's the only way to get the best out of it. And despite what the purists might say an arc is still a good compound for sealing off the ends of your foam and other types of coaxial cable to prevent the ingress of water. Use it even at

432 MHz and I can't notice any loss in performance, but I do know my coax isn't worried by the entry of water, and is mechanically strengthened at the same time.

EME REPORT
From Ley VK2ALU through "The Propagator" He reports no EME test schedule was received for October, possibly delayed in post.

"The eclipse of the sun on 25/10 provided a unique opportunity for VK2AMW to carry out experiments to obtain information on

(i) the diameter of the radio sun at 70 cm.

(ii) the proportion of its energy at 70 cm radiated from the corona.

(iii) effects of the eclipse on properties of the ionosphere, specifically related to rotation of polarisation of signals

"Preliminary results of experiments indicate that (1) the radio sun at 70 cm is appreciably greater in diameter than the 'optical' sun, and (2) the corona generates a considerable percentage of the RF energy emanating from the sun at 70 cm.

"A chart record and numerical results were obtained and are being evaluated. They may modify our antenna beamwidth data pattern, obtained by using the sun as a 1/2 degree diameter noise source.

"The most unusual part of the experiments was in obtaining echoes of our transmitted signal back from the moon when it was directly in front of the

Rotation of the polarisation of the reflected signal during its passage through the ionosphere was not noticeably affected by the eclipse at this location, possibly due to the effect of the residual solar energy from the 8% of the disc still visible and from the corona

"Club members VK2ZVX, VK2KHJ and VK2APG assisted VK2ALU during the experiments. Two visitors, including Japanese amateur JAS3VG (MM operator) were also present.

I would like to add a word to that above and say that, at maximum reception, I was able to observe the total eclipse in the south-east of S.A., and even with the merest glint of the sun visible before total eclipse, the earth is still bathed in ample quantities of sunlight. The great shadow cast by the moon recedes across the earth at super-sonic speed, and when totality is achieved, it is just like the night sky with a few stars, and a twilight situation. The same occurred when the sun emerged from totality. The merest glint again bathed the earth in bright sunlight, indicating the enormous power of the re-radiating body. On this basis, the effect on the rotation of polarisation mentioned by Ley above, would not be greatly affected because there is still a vast amount of light and energy being radiated from a minute part of the sun's surface

VK3 VHF FIELD DAY
VK2 BAD, VHF and TV Group President in VK2, has sent me a copy of the rules and scoring for the VK2 Mid-Summer Field Day Contest to be held on the Australia Day long weekend, starting on 01/02 at 0800 and finishing on 03/02 at 0300Z on Monday, 31/1/77. For details you are referred to the "Contests" section of this issue.

While on the subject of Field Days, I sometimes wonder whether people really want others to know that they are holding a VHF Field Day. Scheduled for 4th and 5th December (these nights are prepared in November) are contests and field days in New Zealand and VK3. I see also from the VK3 VHF Group News Bulletin that one is scheduled in VK3 for the same period. Now prior advice of this to me would have ensured publicity for it. The opportunity is available to publicity officers of the various Clubs to advise me in time, and you can be sure of a mention in my column, but do remember, you need to be in my hands by 25th of the month, e.g. if you want something to appear in, say the March 1977 issue of AR, then I need to have the copy no later than 25th January, and so on. The delay is unavoidable, as preparation and printing takes a lot of time, and remember, most of AR is done on a voluntary basis.

Back on to contests once again for a moment. In the September issue of "Break In" that the New Zealanders are also having a DX Field Day weekend on the same days as the VK2 Field Day. All VHF and UHF bands are to be used, the periods of operation being 25/1/77 0400 to

0002Z, and 0800 to 2400Z. If you can work into 21 on any bands above 1300 MHz you could earn yourself 1500 points too!

When you read this it will be 1977. May it be a happy and prosperous year for you all, despite the inevitable strikes. Closing with the thought for the month, "Fun is like life insurance; the older you get, the more it costs."

73. The Voice in the Hills.

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

LET'S HAVE AN OFFICIAL WIA POLICY ON CB LEGISLATION

The Editor,
Dear Sir,
The topic of CB licensing or legalisation in Australia is becoming a little monotonous and nauseating to amateurs like myself. I believe that this subject must have provoked the greatest amount of public interest and controversy for many years. To the average amateur and CB'er, the issues are a great deal more important than deciding which headband cover is best... or whether daylight saving should be retained. A subject as colourful as CB radio has captured the imagination of most members of the thinking public, due almost entirely to a media that obviously has a leaning towards the "under-dog" CB'er.

Full marks must go to the public relations boys of CB. No matter how they have achieved it, they have done a terrific job, to the point that the general public believes the Licensed Amateur (Ham... shudder) as the protagonist who is bent on depriving the public of the much needed facility of CB radio. What a devastating situation to have led to develop right under our noses!

The battle for legalisation of CB has been continually depicted as a tedious one, the contestants being on one side the goodies, CB operators, pursuing their innocent, almost angelic public service hobby, whilst on the other side we have a combined effort by the Amateurs and the Telecommunications and Licensing Branch (PMA). What an unpoplar running mate we have. No wonder, with the biased media the Amateurs are losing public support.

Surely it's time that we the Licensed Amateurs, through the WIA, came out in the public press with our policy. This policy should be made quite clear and with no ambiguous or half statements. It should be made very clear that our policy, whatever it may be, is not influenced by either public demand or duty-bound allegiance to our "running mate", the PMA. It is most important that we have a mind of our own... and the public must be made aware of it, even if it costs us hard cash in paid announcements.

APART FROM ONE OR TWO VERY SMALL REFERENCES, I PERSONALLY HAVE NEITHER READ NOR SEEN ANY CASE IN THE MEDIA TO HELP THE PUBLIC IN MAKING A FAIR ASSESSMENT OF THE CB SITUATION.

I won't bother to compare this meagre Amateur effort to the tonnage of pro-CB articles that are appearing like mushrooms. Most thinking amateurs have their own opinions regarding licensing CB.

Whilst the thought of hordes of mostly non-technical operators being allowed on the air without the need of any form of examination does like me, I do feel we are only kidding ourselves if we believe CB will go away if it is not licensed. Whether we like it or not we have knowingly let the situation worsen by not pushing hard enough to have stopped the import of potentially illegal equipment into Australia. We are now stuck with the problem and have to cope, with the same logic as exists with other unsavoury products of modern technological living. As in the case of pollution, radioactive convection, and chimney smoke, we have to learn to live with them and try to minimise the bad by-products by sensible control.

In my opinion sensible control (licensing) of CB radio falls into the same category. Let's push to

have legislation approved, collect licence fees, and at least know that there is some form of control!

Let's make a noise—not on the air but in the media.

Sid Ward VK2SW

The Editor,
Amateur Radio,
Dear Sir,
I would like to comment on an article in October AR called "Fixed Wire Beams".
In the article, the feed point impedance is quoted as 75 ohms, when in actual fact it is 300 ohms (as in a folded dipole).

As a suggestion for low power, 300 ohm TV ribbon serves as a folded dipole, and can be terminated in the usual way with a quarter wavelength of TV ribbon.

I hope these observations may be of some help.

Harry VK3PX

The Editor,
Dear Sir,
I was perturbed, but not really surprised, to read in the "WIANEWS" section of November AR that there had been a proposal that the VK/ZL/O DX Contest should be "terminated because of the lack of interest in it".

The apparent "lack of interest", if this is judged on the number of local logs submitted, is mainly due to the unwieldy scoring system used. It normally takes almost as long to work out the score as it does to complete the contest. If a simple multiplier scheme (which is good enough for six other major DX Contests) was adopted for local entrants, and the serial number started at 001 on each band then I am sure the number of locally submitted logs would increase. Also, if the amount of publicity and credit given to the contest in AR was similar to that given to the RD and other local "minor league" contests, then the local log submissions would show a different picture.

Is the "lack of interest in the WIA" on the part of the possible contestants or the WIA?

Yours a sincere,

Tubby Vale VK5NQ

The Editor,
Dear Sir,
I am enclosing a copy of an Award which I received recently. Seeing that I was a special ONE-OF, I thought it would be of interest for publication in AR. (The original is red and blue embossed on white parchment.)

As you can see, it is an award by SCATS to any Ham who makes two-way radio contact with six of their members. Recently I was fortunate enough to receive a signal on 14 MHz from six of their members and I took the opportunity of sending them a detailed report on their transmissions, plus some pictures of my vintage radio gear. Unfortunately, because I haven't got my "ticket" as yet, I couldn't "hit the critics" and go back to them. I do the next best thing. I've got a lot of very modern equipment on which I do hours of listening and I also assist the local "Intruder Watch" officer.

Fortunately I've got time to spare to do this, and I am pleased to report that I have now made a positive identification of one intruder in the middle of the 40m band. This is "Radio Triana" situated in Belgrade, and operates on 7.063 MHz. I've got an English language session on a copy on tape with station identification, anthem and so on. The report has now been handed on to the authorities.

Being the Award is of interest. How many calls have we got one?

Jim Davis, 361 Gilbert St, Latrobe Tas. 7307

The Southern States and Australian Transmitters Society

S.E.A.T.S.

Australian Bicentennial Award

1976-1977

This is to certify that...

has made two-way radio contact with six of the SCATS members listed below during...

this Bicentennial year of 1976 and has performed poorly thereof.

Signature lines and names of officials.

JOHN MOYLE NATIONAL FIELD DAY CONTEST RULES — 1977

Amateur operators and Short Wave Listeners are invited to make this contest held in memory of the late John Moyle, a huge success.

Contestants may participate either as individuals or as part of a group. There are two Divisions in this contest. The first one is for 24 hours continuous operation and the second for any continuous period of 24 hours. Either period must be within the 26 hours available.

CONTEST PERIOD

From 0800 GMT Feb. 12 to 0800 GMT, Feb. 13, 1977

OBJECTS

The operators of portable field stations or mobile stations within the VK call areas will endeavour to contact other portable mobile or fixed stations in VK 2L and foreign call areas on all bands.

RULES

- In each division there are 5 sections.
 - Portable field station, transmitting phone
 - Portable field station, transmitting CW
 - Portable field station, transmitting open
 - Portable field station, transmitting phone, multiple operator
 - Portable field station, transmitting open, multiple operator
- VHF portable field station or mobile station, transmitting
- "Home" transmitting stations
- Receiving portable and mobile stations
- In each Division 24 or 5 hour, the operating period must be continuous.
- Contestants must operate within the terms of the licence.

4. A portable field station must operate from a power supply which is independent of any permanent installation. The power source must be fully portable, i.e. batteries, motor generators, solar panels etc.

5. No apparatus may be set up on site more than 24 hours before the contest.

6. All amateur bands may be used, but cross band operation is not permitted.

7. Cross mode is permitted, but note rule 21.

8. All operators of a multi-operator station must be seated within approximately an 800 metre diameter circle.

9. Each multi-op transmitter should maintain a separate log for each band. 2 FM rig may be separate from 2 AM or SSB rig but note rule 19. A separate QSO number series is required for each band.

10. All multi-op logs should be submitted under one call sign.

11. Only one multi-op transmitter may operate on a band at any one time.

12. RS or RST reports should be followed by serial numbers beginning at 001 and increasing by one for each successive contact.

13. SCORING FOR PORTABLE FIELD STATIONS AND MOBILES

Portable field stations and mobiles, outside entrant's call area — 15 points.

Portable field stations and mobiles within entrant's call area — 10 points.

Home Stations outside entrant's call area — 5 points.

Home stations within entrant's call area — 2 points.

14. SCORING FOR "HOME" STATIONS.

Portable field stations and mobiles outside entrant's call area — 15 points.

Portable field stations and mobiles within entrant's call area — 10 points.

15. Portable field stations may contact any other portable field station twice on each band and mode (19.16), during the period of the contest provided that at least 4 hours elapse after the previous contact with that station on that band and mode.

16. Stations may be worked repeatedly on 32 MHz and above providing 2 hours have elapsed since the previous contact on that band and mode. Note that FM AM SSB and any other voice modes are grouped together as PHONe.

17. Operation via active repeaters or translators is not acceptable for scoring.

18. All logs should be set out under headings of Date-time in GMT, Band, Emphasis, Call sign, RST sent, RST received, and Points claimed. List contacts in correct sequence. There must be a log sheet to show Name, address, division, section, call sign, or call signs of other operators, location, points claimed, equipment used, and power supply. You must also certify that you have operated in accordance with the rules and spirit of the contest.

19. Certificates will be awarded to the highest scorer of each section of the 6 hour and 24 hour divisions. The 6 hour certificates cannot be won by the 24 hour entrants. Additional certificates will be awarded for excellent performance.

20. Entrants in sections a, b, c, d, e, and f must state how power for transmitting is derived.

21. All CW-QW contacts are as double. Cross mode contacts do not count double.

22. Entries must be forwarded in time to reach the Contest Manager by 18th March, 1977. The address is — Federal Contest Manager, Box 67, East Melbourne, 3002.

RECEIVING SECTION

This section is open to all short wave listeners in VK call areas. Notes are to be for transmitting stations, but logs do not have to show report and serial number of the second station, or station called. Logs must show the call sign of the portable or mobile station heard the report and serial number sent by that station, and the call sign of the station called. Scoring is as shown in rule 14 for home stations. A station calling CQ does not count. Portable and mobile stations, which must be listed in the left-hand call sign column of your log, alone count for scoring. Stations in the right-hand column may be any station contacted. A certificate will be awarded to the highest scorer of each of the 6 hour and 24 hour divisions, individual or multi-operator entries. Certificates will be issued for excellent performance.

AWARDS COLUMN

Brian Austin, VK5CA

P.O. Box 7A, Crafers SA, 5152

AUSTRALIAN DXCC TOP LISTINGS AS AT 23.15.76:

Phone:			
VK6RU	320/352	VK2APK	300/313
VK4KS	320/339	VK4FJ	287/324
VK5MS	313/343	VK4PX	287/304
VK6MK	310/337	VK3JW	294/311
VK3AH	304/326	VK4AB	281/314
VK4UC	310/306	VK8UK	248/280
CW:			
VK2EO	317/346	VK3XB	280/300
VK3AHQ	300/321	VK3MC	287/324
VK2OL	306/335	VK6RU	267/296
VK3YL	298/321	VK3YD	258/281
VK4FJ	297/329	VK4HC	256/281
VK2APK	291/304	VK3TL	248/280
Open:			
VK4KS	321/345	VK4PX	304/315
VK6RU	320/352	VK4UC	304/310
VK4SD	315/336	VK2SG	301/311
VK2APK	311/329	VK3JW	285/302
VK6MK	310/337	VK3XB	286/306
VK4FJ	308/341	VK4RF	288/303

DXCC NEW MEMBERS SINCE 14.3.76:

Phone:	
VK2CW	Tally 109
VK7CL	156
VK4VU	227
VK3DF	109
VK1ADP	113
CW:	
VK2YR	Tally 112
Open:	
VK3AUL	Tally 101

ALTERATIONS TO SCORES (EXCLUDING TOP 12 AND NEW MEMBERS:	Phone	CW	Open
VK6CW	250/224	—	258/251
VK5RX	143/143	213/226	—
VK6HF	132/134	—	—
VK2OW	145/145	149/186	214/224
VK4EZ	—	—	120/124
VK4CZ	254/255	—	—
VK4DO	254/271	201/223	262/285

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As the result of devaluation of the Australian dollar the following are the provisional rates effective at once for overseas subscriptions orders processed on behalf of WIA members —

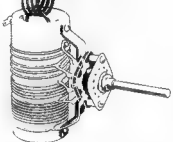
SA.	1 yr.	2 yrs.	3 yrs.
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73	10.00	19.40	19.40
CQ	8.00	13.60	—
Ham Radio	9.70	—	20.00
Radio	—	—	—
Communication*	12.50	—	—
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Communications	6.00 (A & M. 6.00)	—	—

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CHESS VIA AMATEUR RADIO

Albert (Simon) Templar VK1AF
C/- BPC, Ocean Island

Last June a chess tournament was held between four players on Ocean Island and four players on Christmas Island and below is a brief account of the whole setup.

The idea was originally brought up by Kevin VK9XK during a regular sked. During the discussion that followed a number of points were brought up:—

Method of Notation
Time of Moves
No. of Games
Propagation

It was decided that Ocean Island would play White in the 1st and 3rd games, with 4 games played simultaneously being the maximum we thought we could handle.

The time for moves was decided at 5 mins. 12 moves per hour approximately.

Propagation was checked over a few Sundays and found that 0530 to 0800 GMT gave us a good workable Signal.

NOTATION

A look through a chess book showed two methods used. The universal method is the one that we used.

The matter of players came up next and Kevin VK9XK had no problems, there was in fact too many players who answered the call to arms, broadcast over the local radio station.

On Ocean Island I had not so much luck, there being only about 8-9 people who knew how to play chess, some were just going on leave and to boil it down, the final list of 4 players changed 3 times before the Big Day.

With the final check on propagation the Big Day was set for Sunday the 13-6-76 and the following arrangements were made at Ocean Island.

4 surrounds were made from white wrapping paper to place under Chess Boards for easy reference of Notation. i.e. D2 — D4, etc.

A check sheet was made up for each game.

GAME No. 1

Moves No.	Ocean Island (White)	Xmas Island (Black)
1	Russell Harding	Meg Turkin
2		
3		
etc		

At Ocean the contestants were set up in what is called a "Maneaba" (a native meeting house), which is basically a thatched roof of pandanus leaves, supported by up-rights (no walls), with a small card table, chess set, stubby holder (of course), and a pen with check sheet.

The Maneaba belonged to Dr Ron Plachy, one of the Ocean Island contestants and neighbour to VR1AF

The final teams were:

	Ocean	Christmas
Game 1	Russell Harding v	Meg Turkin
Game 2	Ron Plachy v	Stuart Wills
Game 3	Jim Allen v	Jeff Deale
Game 4	Nick Wardrop v	Gareth Thomas

Also the services of 4 youngsters to run the check sheet between the Maneaba and the radio shack was sought.

Both my XYL Joan and also Betty Plachy offered to provide refreshments and snacks during the Tournament.

At Christmas Island the Tournament was to be held at the Amateur Radio Club Station VK9XI followed by a bar-b-que.

At Zero hour, everything went smoothly



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QTR-24

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QTR-24



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Yaesu has now made an addition to their already well known range of measuring instruments, it is the QTR-24, a 24 hour World Clock. With a glance the time in any principal city or time zone can be simultaneously co-ordinated with local time on a 24 hour basis. The QTR-24 is powered by a 1.5V dry cell, which has a normal life of approximately one year. No amateur or

SWL station could be complete without one. Stocks expected around late September.

Also shown in the photograph is the YO-100 monitor scope, FT-101E transceiver, YO-601 digital readout adapter and YP-150 dummy load-power meter.

QTR-24 PRICE \$33



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FRED BAIL VK3YS.
JIM BAIL VK3AGA

JAN 76/7-3

for the first few moves, and it was realized that notation numbering was not as should be, 15 minutes of sorting out solved the problem, and from then on all was plain sailing.

The first game went to Ron Plachy on Ocean Island in 12 moves, a very fine effort. The next to Russell Harding in 22 moves, both players having a short chat with their opponents before move information for the continuing 2 games Nos. 3, 4.

At 1030Z, the band became unusable with games 3 and 4 still running, but a very good afternoon was had by all.

A quick exchange of information organized continuance of the remaining games in a week hence.

On the 20-5-76 at 0530 GMT contact was quickly established but the evening was uneventful with both games still running and was terminated at 0900 with the band closing down. Once again we were to continue the following week.

Contact was not established until 0600Z, and it was decided by all that this was to be the last day, and that five minute rules would have to be enforced.

This made a noticeable difference to the play and at 0740 Jim Allen stalemated with Jeff Deale and spent a few words discussing it on air.

The game had taken 51 moves to stalemate. The 4th game finished at 0800Z with Nick Wardrop victorious in 54 moves.

The end result was 3 wins to Ocean and 1 draw.

In conclusion, a good time was had by all, but it was felt that 3 days was too long, and that shorter move times and one session would be more enjoyable.

A comment to add here may be appropriate as put forward by Don Reed VK2ADR, "Was this an Amateur Radio first?" — Cheers between the Indian and Pacific Oceans, via Amateur Radio — I wonder!!

P.S. There is also a Pacific DX. Net, normally on Tues. and Fridays 0600 GMT 14.265. ■

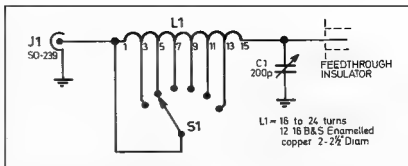
NEWCOMERS NOTEBOOK

Rodney Champness, VK3UG
David Down, VK5HP

A TUNING UNIT FOR RANDOM LENGTH WIRE ANTENNAS

This simple tuner will cover 80 thru 10 metres and depending on the spacing between the capacitor plates, up to 300 watts will be catered for. The tuner therefore lends itself for Novice and high power transmissions over the HF spectrum.

The tuner is housed in a metal box, about 6 x 5 x 4 inches. C1 and S1 are mounted 1 1/4 inches above the bottom of the box. Ensure that C1 is adequately supported front and rear. To have large components front-mounted only, is a bad constructional practice to adopt, and in other types of equipment, such as VFOs, can lead to mechanical instability.



L1 is wound with every alternate turn indented. Position L1 so the indentations face up and to the front. L1 is mounted 1/2 inch from the rear and bottom of the box and is supported by its own leads — one to J1 and the other to the feedthrough insulator.

S1 is a rotary shorting switch and should be mounted so the 3 contacts closest to the front panel face C1. The wiper contact should face the bottom of the box. Connect the lugs on S1 to C1 and J1 prior to wiring to L1.

When wiring to the taps on L1, start at the end nearest C1 to minimise the hazard of shorting.

Use 18 SWG wire and solder to the taps, beginning at the 15th raised tap, then working back to the 3rd raised tap. After all necessary drilling is done and positioning of components is checked, one or two coats of spray enamel (your colour choice) and 4 rubber feet glued to the base of the box will greatly enhance its appearance.

S1 and C1 may be carefully labelled at the front panel, freehand with ink, with Dymotape or with Letraset (depending on your financial resources) to round off a nice finish.

C1 minimum capacitance is marked 0, and S1 is marked 0 where all contacts are shorted (full anti-clockwise). With C1 and L1 set to 0 (L1 via C1) the transmitter will see the antenna as if the tuner did not exist.

For optimum results, your antenna should be a multiple of wavelength or quarter wavelength (see Newcomers Notebook July 1975). Connect the transmitter output to J1. Set C1 and L1 to 0 and tune the transmitter. Adjust S1 for maximum RF output, then C1 for peak output. After C1 is adjusted, try the next S1 position — usually a couple of tries will be sufficient. Mark the settings for each band on a card, and attach this neatly to the front panel for ready reference. This will save time in bandchanging later.

Best of luck to all those undertaking the various courses around the country, and we hope you are all soon successful at an examination so you can legally start producing RF from the shack.

73 till next month,

Rodney VK3UG and David VK5HP/
ORP. ■

COMMERCIAL KINKS

Ron Fisher, VK3OM
3 Fairview Ave.,
Glen Waverley, 3150

Unfortunately I have not been able to complete my proposed changes to the Realistic AX-190, so these will have to be carried over to next month. However the work so far completed looks promising. Don't forget if you have any ideas on modifications that you have either carried out or intend to carry out, please let me know. For this month we return to the FT101 but this time the "E" model. Daryl Manley VK3AMJ discovered the cure to a built-in fault in his 101E.

The transceiver had operated for the last twelve months both mobile and in the shack, and I had been very pleased with its performance; so it came as a surprise when a report of hum on the signal was received. Tests carried out with a local station confirmed the problem. The hum, which was at approximately 100 Hz, appeared to decrease when modulating the transceiver and built up after I stopped speaking.

My first reaction was to suspect a problem in the power supply, but a check of all the filter components proved nothing. Tracing the problem further, it appeared that the hum was getting into the balanced modulator and producing output from this stage. This seemed logical as the hum was noticed more by local stations than by distant ones.

It was felt that the fault was associated with the microphone amplifier or balanced modulator stage. A quick way to prove this was to replace the plug in modules with others from another 101, however the trouble continued. The next step was to disconnect the audio stage from the balanced modulator. This was easily achieved by disconnecting the link between pin 8 of the MIC amplifier board and pin 9 of the modulator/oscillator board.

Using a separate monitor receiver in the shack, further tests confirmed that with the MIC stage disconnected there was no hum on the monitor receiver. On reconnecting this stage it was found that the hum level altered with the setting of the MIC GAIN control but in reverse proportion to the setting of the control. At this point it

became obvious that the hum was being produced by an earth loop around the MIC stage. The MIC amplifier stage is earthed in two places, pin 1 and pin 6. They are earthed at the connectors with a short piece of wire directly to the chassis. But also from pin 1 is a connection to earth at the final stage. Removing this extra earth lead cleared up practically all the hum proving the earth loop theory. A further reduction in the small amount of remaining hum was achieved by joining the two earth rails in as many places as possible on the board and by insulating the top mounting screw from the earth on the board.

Following these modifications, reports indicate no hum on the transmission. Daryl's work in tracking down this hum should be of interest to all of those who are fussy about the quality of the signal they put out. I think that this same trouble occurs in many other types of transceivers perhaps to a similar extent. Maybe the method of tracking the problem down could be applied to your rig. Check with a local and see if your signal is clean. ■

WICEN IN ACTION

The Wagga WICEN Group are now drying out and recuperating after mounting a major communications operation during the recent serious floods which threatened to inundate the City of Wagga Wagga and the town of Narrandera.

Regional WICEN Co-ordinator Sid Ward VK2SW and Deputy Co-ordinator Doug Monneka VK2ZMP alerted WICEN on Sunday, 17th October, 1976, and became operational on Monday, 18th.

Three self-contained 2-man WICEN teams were stationed at selected gauging stations well up river from Wagga from Monday morning continuously until Thursday afternoon and another team was stationed about 15 miles downstream.

Regular hourly and half-hourly readings and other data was passed via the Channel 3 Wagga Repeater direct into a WICEN station in the Divisional headquarters of the State Emergency Services in Wagga.

This continuously available data permitted accurate estimates of the maximum river height, which contributed to the peace of mind of the City's inhabitants and were of great value to the workforce constructing sandbag levees.

In addition the Wagga WICEN Group provided

mobile and flood boat 2 metre Simplex communications for the Police Volunteer Rescue Group and from the flooded areas of the City back to another WICEN station at SES Divisional headquarters.

Simultaneously, at Narrandera some 65 miles downstream, Harry Culbert VK2AEC was monitoring the Wagga river heights on the Wagga Repeater and relaying to the Narrandera SES authorities and passing direct to Wagga the river height data from Narrandera.

At the time of writing the flood peak was approaching Narrandera and Harry still had several days of hard work ahead of him. The Wagga WICEN Group were very fully supported by every member of the Wagga Wagga Radio Club who could assist, plus many of the YL's and XYL's, and Harry was backed by a number of the Narrandera Amateurs and very ably by Mrs. Culbert.

The Wagga and Narrandera WICEN-ers provided a 100% emergency communications service of which they can be proud and they can also take pride in the reliability of their Repeater, which never missed a beat throughout the whole operation.

Congratulations to them and thanks for a job well done and it is trusted that the statutory bodies who benefited so greatly will express their appreciation and thanks when compiling their official reports.

Howard Freeman VK2NL,
VK2 State WICEN Co-ordinator.

IONOSPHERIC PREDICTIONS

Len Poynter, VK3ZGP

1976 comes to a conclusion on a very uncertain note. It appears we have still not reached rock bottom of Cycle 20 and there is no positive indication that Cycle 21 is really getting into gear. There was evidence of the new Cycle activity during the past twelve months but not enough to sustain activity beyond a few days.

The experts are still cautious with their predictions and all scientific evidence still appears to be based on declining Cycle 20 material. The appearance of the new cycle spots and their resultant higher activity level are providing the devotees of their own exclusive bands, plenty of DX, particularly on 21 and 28 MHz. There has been ample evidence of just slightly higher than average solar flux figures, of increased propagation quality. Incidentally WWV at 18 minutes past the hour are still giving Solar Flux and A Index readings for the previous GMT day, along with the K Index for the current GMT day at a nominated hour. Despite many arguments this K Index and the state of the geomagnetic field provide valuable information if you are prepared to keep records daily.

The two indices available currently show the sunspot running around number tending to even out early to 1977. Predicted numbers at Sept 30th, 1976, are Oct 78—9, Nov 78—7, Dec 76—6, Jan 77—6, Feb 77—5, Mar 77—5.

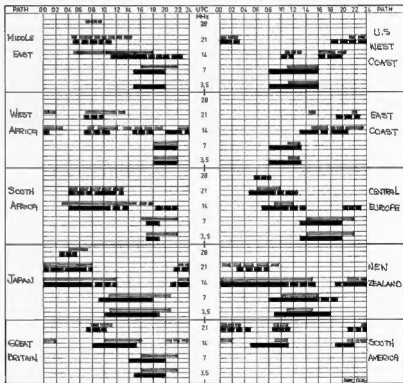
The average predicted minimum was 5. Here we hold our breath and hope that mid 1977 will see the long awaited climb towards the next maxima. Looking across to the Solar Flux predictions, the latest available forecasts show:

Dec 76—87, Jan 77—87, Feb 77—105, Mar 77—111, Apr 77—116, May 77—122.

Predictions for Nov 76 of 78 look like reaching this figure at the time of writing (late Nov). For Dec 76 it is quoted as 87. These of course are monthly means and the daily figures vary with solar activity.

Other parameters exercise considerable influence over our ionosphere and the average amateur is not in the position to correlate available data with any speed. With the ionosphere varying at all times, 100% accurate predictions are difficult—if not impossible to make. Probably the best predictors are amateurs, using their bands at all times. Not just listening to noises, but making noises. It's marvelous how a two-way QSO across town can open an otherwise dead band.

Using the charts as a guide to path openings call CQ and test the propagation—try long and



LEGEND

FROM WESTERN AUSTRALIA

FROM EASTERN AUSTRALIA

BETTER THAN 50% OF THE MONTH, BUT NOT EVERYDAY

LESS THAN 50% OF THE MONTH

PREDICTIONS COURTESY IPS, SYDNEY

ALL TIMES UNIVERSAL UTC (GMT).

short path. Often you will be surprised, sometimes from the only one on the band and VKs are often in short supply. Remember receivers never worked DX.

When Oscar 8 orbits, we probably will not require prediction charts—only orbit times—just think of the QRM? 73's. Best DX for 1977. VK3ZGP/3NAC.

IARU NEWS

INTRUDER WATCH

All Chandler, VK3LC

1536 High Street, Glen Iris, 3146

An article in the "Age" of Friday, 19th November, 1976, entitled "Triumph of Terrorism", by the Hon. Don Chipp, seems to me to be relevant to Amateur Radio in view of the forthcoming World Administrative Radio Conference in 1979.

He says, and I quote — "With the naïveté that peculiarly belongs to the stupid, I keenly anticipated the Madrid meeting. I was bitterly disappointed . . . For three days I sat there and heard an unimaginable series of platitudes, hypocrisies and delusion . . . In any International Conference today the Afro-Asian-Arab Bloc can virtually control the agenda and the resolutions . . . This new majority is now using its muscle in the world's international forums ruthlessly and vigorously. The incongruity is that by destroying the efficacy of the system they will suffer most." — Unquote.

How apt this will be if something isn't done to educate and persuade this same "Afro-Asian-Arab Bloc" to recognize and foster Amateur Radio! One way is to keep observing infringements of Commercial Use by bands, and reporting them to the Intruder Watch Co-ordinators. As the ban open up again you can be assured that there will be many more intrusions than at present. Happy New Year.

HAMADS

- Eight lines free to all WIA members. \$9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Teerak, Vic. 3142.
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- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

Clegg FM 27 145-147, fully tunable with mobile mount, mike, manual. Recently serviced by distributor. \$200. VK2BQ, QTHR. Ph. (049) 61-1560.

Handheld Tampe KP202 (same as Ken) with re-stator channel 2, 6, 6 and two US Simplex channels. Nicad charger, short antenna and manual. \$100. VK2BQ, QTHR. Ph. (049) 61-1560.

Uniden 2820, \$510. Matching ext. VFO \$75, splr. unit \$30, the lot \$585. Atlas 210X with Shure 404C mic. \$565; KP12A RF Speech Processor \$80; Aashi circle eloaded HF mobile antenna set and bumper mount \$100; AL480XN trap dipole with R410 beam. \$100. All above as new, little used. VK3ARZ, 709 High St. Road, Glen Waverley, 222 9492 A.H.

Drake Rx Model SPR-4 Communications and Amateur crystals for AM-USB-LSB-CW, double conversion, dual v.l.o.; excellent condition. Half-price (\$450). Jim Dunne, 99 Studay Park Road, West 3101. Ph. (03) 86 8641.

FT2B, FM, 2m, transceiver. Ch. 40, 50, 2, 3, 4, 5, 6, 7 and 8. Two mobile mounts, mics, handbooks, all in good order. \$140. VK2BJK, QTHR. Ph. (02) 448 1598.

FT220 2m SSB, FM and CW transceiver. As new, had very little use. With extra crystal for repeaters, 240 AC 12V DC. \$435. VK3BHM, 35 Ropley Ave., Balaclava. Ph. (03) 80 1204.

FT220 with Yaesu AG power supply/speaker, 18 months old, in mint condition; just completely checked over and in A1 going order. Operated on CW only, no SSB unit required. \$350. O.N.O VK4AUU, QTHR. Ph. (02) 76 9143.

BS500 Base station, fitted channels for 2m RTTY, 40, 50, 2, 3, 4 and 5. New 15 Yagi antenna. TMC solid state terminal unit and AWA demodulator. \$350. HRO CW all coil boxes — best offer. VK3YJL. Ph. (051) 56 8311.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. L. H. DUNCAN	VK5AX
Mr. F. H. BULL	VK2AJM
Mr. D. E. VAUGHAN	VK2FY
Mr. R. J. EVERINGHAM	VK5BO
Mr. N. MARTINSON	VK6NM

From Estate of the late F. H. BULL VK2AJM. Unitek multimeter, 52 ranges, \$70. Oskelbloc SWR 200 power meter, \$40. Omega T noise bridge, model FT-01, \$20. VK2AJL, QTHR. Ph. (02) 41 7729.

Swan 240 transceiver 80-40-20 m. C/W matching power supply, mike and instruction book, unit in immaculate condition and works perfectly. \$200 firm. VK2MR, QTHR. Ph. (02) 529 5857.

SSV Monitor Robot model 704, as new, in box, \$360, or swap FTD400, FTD450 or FTD401, VK2ZHF, 17 Orange St., Peadar Hill 2145. Ph. (02) 631 1268.

Kenwood TS510 Transceiver and power supply in excellent condition, still as original with no mods, has just been retuned and realigned and gives excellent performance and has particularly good Rx characteristics under strong adjacent signal interference. Upgrading to TS680 and desire quick sale for \$275. VK3CGO, QTHR. Ph. (03) 977 1155.

Uniden 2828 Transceiver 35-10 m. with AC/DC power supply, phase-locked loop, etc. Am off air at this location so virtually unused, re-checked O.K. by agents. Any reasonable offer. VK2KR, QTHR. Ph. (02) 449 4524.

2 metre 5-element beam with mast and lift-over top for horizontal/vertical polarisation, \$20; 10 m to 160 m vertical, portable with nylon guys as per AR Oct. 1971, \$40; Pye Ranger, 1 original and 1 converted to 2 m, 6 ch. \$40 each. A. G. Holden, 25 Warwick St., Ascot Vale 3032.

Triol Band BSS transceiver TS510, ex condition, ex VK3MAN, \$300. New electronic workshop practical exercise kit, new components for novice Tx and other useful items, \$75. Ph. (03) 844 3222.

Ugent! Cheap! Cleanout! (moving QTH). Hy-Gain 204BA with 8N86 balun, 14A5; AR2X Ringo 2 Mx vertical, \$30; Ken KP220, charger, hell whip and steel 1/4 wave, 2 sets nicad, regis 2 m, 6 ch, simplex, 40, 50, 150; FT15B TCR 80-10 Mx, 40 and DC PSU's, FV50G (3 x 15s 80, 40, choice of 7 for 20 Mx, 1 each on 15 and 10), \$330. All above gear in excellent condition. Enquiries B. Bathols, VK3UV, 6 Ann Court, Ascendale, Ph. (03) 80 6424 A.H.

WANTED

Kea Students; Amateur and Novice courses Box Hill Technical College start Feb., 1977. 1-89 0231 now and register your name with Gram VK3R or Ken Dobson.

FV401 External VFO Unit for FTD401, VK4RF, QTHR.

2m Linear Suit BME, VK3YJL. Ph. (051) 56 8311.

Series 80 coaxial cable, 48 volt, Type N, 2m wanted. VK3KW, 3 Rose St., Essendon. Ph. (03) 379 1152.

Type 3, Mk. II and/or Type A, Mk. 3 equipment, comp's. VK2ZW, 2 Drew St., Devonport East. Ph. (02) 47 8808.

National HRO or AWA AMR100 (not A27) receivers, complete, or parts for restoration project, diala, tuning capacitors, coils, meters, etc. VK2PW, QTHR. Ph. (02) 807 5725.

Power Transformer or complete P.S. unit 2 x 813 linear. Price and particulars J. Moyle VK4ZT, QTHR.

2m FM Rx, solid state physically small size, VK3AFJ, QTHR. Ph. (052) 21 3558 A.H.

Yaesu FT5B50B, FT250B, FT101E. Bob. Ph. (02) 646 0426 Bux. (02) 46 3727 A.H.

STOLEN EQUIPMENT

Meltri-7m transceiver, serial No. 68075, has broken microphone case. Taken from car parked at Boco-croft. VK6BLB, QTHR. Ph. (02) 84 2405.

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